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Composite effects for static and dynamic facial expressions

Abstract

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A key difference between these approaches is that access to object identity requires attention. We tested this prediction in a response competition paradigm in which irrelevant letters appeared on tracked or untracked objects while observers searched for a target in a continuous stream of letters appearing in a fixed location. We found that response-incompatible letters appearing on tracked objects, but not untracked objects, interfered with responses to relevant targets appearing in the attended stream. These results suggest that observers pay attention to the objects they are tracking, even when indexing theory holds that this is not an optimal strategy, suggesting that visual attention is required for object tracking.

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(1006)

Luminance Outshines Lightness in the Object-Reviewing Paradigm. ANJA FIEDLER and CATHLEEN MOORE, *University of Iowa*. — Previous work has shown that objects' surface features and scene-based information can influence the perception of object correspondence (e.g., Moore, Mordkoff, & Enns, 2007; Moore, Stephens, & Hein, 2010). The present study contrasted the effects of objects' luminance (physical surface feature) against the effects of lightness (perceived surface feature) on object correspondence. To do so, we combined the object-reviewing paradigm with the checkershadow display (Adelson, 1995) and manipulated the luminance of objects and their perceived lightness. Participants were faster in a matching task, when the matching symbols were presented in the same objects compared to when they were presented in the opposite objects. This object-specific preview-benefit was eliminated, however, when luminance abruptly switched between objects, but not when objects' lightness changed and luminance was constant. In summary, object correspondence, as measured through the object-reviewing paradigm, depended on objects' luminance rather than on their lightness as induced by the background scene.

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(1007)

The Impact of Video Game Playing on the Extraction of Statistical Summaries in Visual Displays. OYKU ÜNER, AYSU MUTLUTÜRK and AYSECAN BODUROGLU, *Bogazici University*. — People efficiently extract summary statistics of displays. However, it is unclear whether this is automatic, or the end-result of strategic processes. To investigate the impact of perceptual learning processes on summary statistics, we compared action (AVGP) and strategy (SVGP) video game players to non-gamers across visual and spatial tasks of summary statistics. In the mean size task participants estimated the mean size of a set whose variance and mean were varied. In the centroid task, participants estimated the center-of-mass of randomly located items in a display while configural cues were manipulated. Overall, errors in both tasks were correlated, suggesting that the ability to extract summary statistics may be domain-general. Critically, AVGP and SVGP outperformed non-gamers in the

centroid task. There were only action game related benefits in mean size estimation. Results suggest that there may be strategic influences on the extraction of summary statistics. Email: Aysecan Boduroglu, aysecan.boduroglu@boun.edu.tr

(1008)

The Impact of Correlated and Uncorrelated Noise on Visual Perception. MARY KISTER KAISER, *NASA Ames Research Center*, LINDA TOMKO, *San Jose State University*. — Although the phenomenon of binocular summation is well documented, it is unclear the extent to which the human visual system can exploit this mechanism in dealing with image noise. Previous studies (e.g., Pardhan & Rose, 1999) have demonstrated that detection thresholds are elevated when the noise in static binocular images is correlated (compared to fully independent). However, the impacts of dynamic noise and of partially correlated noise have not been adequately examined. In a repeated-measures study, we examined both detection and discrimination thresholds in the presence of dynamic, salt-and-pepper noise with binocular correlations of 0, 0.5, or 1.0. We also examined whether the addition (and degree of correlation) of additional noise artifacts typical of night-vision devices (i.e., "poppers") affects thresholds. Findings will be presented and discussed.

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(1009)

Variance Discrimination Between Orientation and Size: Efficiencies in Cross-Task. SACHIYO UEDA, AKIRA ISHIGUCHI and MIDORI TOKITA, *Ochanomizu University*. — We perceive the statistical information of environment to interact them effectively. Many researches have shown intriguing ability to perceive average values. However it is possible that the variances are more important and unique statistics in terms of common concept across different stimuli. In this study, we conducted some cross tasks of variance discrimination between different stimulus properties (e.g., orientation and size) and compared the performance in the cross-task with in the uni-task (discrimination between same stimulus properties). To compare the performances, we employed 'standard Weber Fraction' as an index. We also examined the tendency of the standard Weber Fraction as a function of pedestal variance. The results showed that discrimination precision in cross-task was not worse than in uni-task. The tendency of the standard Weber Fraction in cross-task was similar to in uni-task. These results suggest the possibility of mechanism of variance perception which does not depend on stimulus properties.

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(1010)

Composite Effects for Static and Dynamic Facial Expressions. SIMONE FAVELLE and ALANNA TOBIN, *University of Wollongong*, ROMINA PALERMO, *University of Western Australia*. — Facial expressions have been shown to be processed holistically. However, most of this research has been conducted using static images of expressions, which neglects the fact that real world facial expressions involve movement. The current study used the composite task to determine



whether facial expressions in motion show similar hallmarks of holistic processing to static images of expressions. Upright and inverted conditions were included to test whether holistic processing was specific to upright facial expressions and also to attempt to isolate the influence of the motion per se. Overall, results showed clear evidence of holistic processing for both static and dynamic upright expressions, but not for inverted expressions. The magnitude of the composite effect in static and dynamic expressions was similar for all expressions except for fear. Thus, while both static and dynamic expressions appear to be processed holistically, motion may emphasise featural information in expressions of fear.

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(1011)

Neither Context nor Categorical Inhibition Cleanly Accounts for Recognition-Induced Forgetting. ASHLEIGH MAXCEY, *Manchester University*. — The present study used visual stimuli to provide novel tests of the competing theoretical accounts of forgetting during the typical retrieval-induced forgetting paradigm, the context (Jonker et al., 2013) and the inhibition (Anderson, 2003) accounts. In a modified recognition-induced forgetting paradigm (Maxcey & Woodman, in press), an additional category of objects was interleaved into both the study and recognition-practice phases. In Experiment 1 memory for secondary objects in the recognition-practice phase was superior to study phase objects, as predicted by the context account, not the inhibition account. In Experiment 2 the study context was reinstated and memory for secondary objects in the study phase was superior, without impairing the recognition-induced forgetting effect, contrary to the context account. These findings supported neither of the tested accounts, pushing theoretical perspectives of forgetting to account for how these memory mechanisms would operate as we encounter, and reencounter, objects in our visual world.

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(1012)

Reading unsegmented text reduces preview benefits. HEATHER SHERIDAN, *University of Southampton*, EYAL REINGOLD, *University of Toronto*. — Reading English text without spaces leads to slower reading rates, longer fixations, and disruptions to saccadic programming and lexical processing (Sheridan, Rayner, & Reingold, 2013). To explore the source of these deficits, we used a gaze-contingent boundary paradigm to manipulate parafoveal preview (i.e., valid vs. invalid preview) in a normal text condition that contained spaces (e.g., “John decided to sell the table”) and in an unsegmented text condition that contained random numbers instead of spaces (e.g., “John4decided8to5sell9the7table”). Preview effects on mean fixation durations were larger for normal than unsegmented text conditions, which indicates that one source of the deficits for unsegmented text is a reduction in parafoveal preview benefits relative to normal reading. Moreover, distributional analyses revealed a delay in the onset of both preview effects and word frequency effects

on fixation durations for unsegmented relative to normal text. We discuss possible mechanisms, such as visual masking and word segmentation difficulties.

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(1013)

Psycholinguistic Processing in Reading of Dynamic Text. HANNAH HARVEY and ROBIN WALKER, *Royal Holloway University of London*, SIMON LIVERSEDGE and HAYWARD GODWIN, *University of Southampton*. — Little is known about the reading of dynamic scrolling text, despite its prevalence in digital media (e.g. TV news tickers). The horizontal scrolling of text presents a conflict to the attentional and oculomotor systems, requiring tracking of the text right-to-left simultaneously with left-to-right gaze and attention shifts for processing each word. Here we investigated known lexical (word length and frequency; Experiment 1) and sentence-level processing (predictability; Experiment 2) effects when reading static and dynamic text. The effects of word frequency, word length, and predictability were replicated with dynamic text, however a dissociation was found, with increased fixation durations and reduced skipping probability during reading of dynamic scrolling text compared to static text (Experiment 2 only). This suggests that the additional demands imposed on the oculomotor and attentional systems by dynamic text increase difficulty of sentence-level psycholinguistic processing, whilst lexical processing is unaffected.

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(1014)

The Effects of Feedback and Target Prevalence on Visual Search. CHAD PELTIER and MARK BECKER, *Michigan State University*. — Lab-based visual search experiments have been used to construct models of search dynamics and search termination in target absent trials. These models might be applied to understand real-world search performance. However, there are critical differences between most lab-based and real-world searches that may make it difficult to generalize from the lab to the real-world. Specifically, in the lab there is often trial-by-trial feedback and target prevalence is high (50% or greater). By contrast, in many important real-world search tasks (e.g. radiology and baggage screening) performance-based feedback is often impossible to give, and targets are rare. To investigate how these factors influence search dynamics, we directly manipulated target prevalence and feedback. We found that target prevalence and feedback interact to influence search accuracy and duration. In low prevalence searches feedback decreases search duration and increases misses, but in high prevalence searches feedback is not related to search duration or accuracy.

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(1015)

What Drives Eye Movements in Narrative Film Viewing? The Roles of the Film Stimulus Versus Higher-Level Comprehension. JOHN HUTSON, *Kansas State University*, TIMOTHY SMITH, *Birkbeck, University of London*, JOSEPH MAGLIANO, *Northern Illinois University*, LESTER